

Sub C3
~~upper edge of the wall and providing a passage through the wall.~~

--13. (new) The electrode structure according to claim 12, wherein the wall is cylindrical.

--14. (new) The electrode structure according to claim 12, wherein the wall is hemispherical.

--15. (new) The electrode structure according to claim 8, wherein the soldering land further comprises a flange, said flange extending above the surface of said carrier substrate, said at least one slit extending through the flange.--

REMARKS

A proposed drawing correction is submitted herewith designating Figures 5(a), 5(b) and 6 as prior art.

Claims 1-7 were previously pending in the application. New claims 8-15 are added. Therefore, claims 1-15 are presented for consideration.

Claims 1-7 are amended to address the rejections under 35 USC §112, first paragraph, set forth in the Official Action.

The amendment of claims 1-7 also addresses the rejections under 35 USC §112, second paragraph, noted in the Official Action.

Applicant has added new claims 8-15. Of these, claims 12-14 recite a cup-shaped soldering land as seen in Figure 3, for example.

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No art was applied against claims 1-7. Claims 8-15 recite features neither taught nor suggested by the art of record. Accordingly, claims 1-15 are believed patentable.


Since the formal requirements noted in the Official Action are believed addressed, and since no art was applied against the claims, applicant believes the application is in condition for allowance.

Reconsideration and allowance are respectfully requested.

Attached hereto is a marked-up version showing the changes made to the specification and claims. The attached page is captioned "VERSION WITH MARKINGS TO SHOW CHANGES MADE."

Respectfully submitted,

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"VERSION WITH MARKINGS TO SHOW CHANGES MADE"

IN THE SPECIFICATION:

Page 7, the paragraph, beginning on line 7, has been amended as follows:

--Then, these are thrown into a reflow furnace for soldering, printed solder 203 is melted, and the solder 203 becomes wet and starts spreading over the soldering land 202 of the main substrate 201 and the soldering land 103 of the BGA and the CSP. Air stagnates in the recess of the soldering land 103 of the BGA and the CSP, and usually the air prevents the solder 203 from invading into the recess. However, in the first embodiment of the present invention, since the air inside the recess escapes via the slits 104 shown in FIG. 1, it becomes possible for the solder 203 to become wet and spread in the recess fully. When they are taken out from the reflow furnace, the solder hardens, and the soldering land [202] 103 of the carrier substrate 102 is bonded to the soldering land 202 of the main substrate 201.--.

IN THE CLAIMS:

Claim 1 has been amended as follows:

--1. (amended) An electrode structure of a carrier substrate of a semiconductor device for solder-bonding the semiconductor device to a main substrate, [wherein] said electrode structure comprising:

a carrier substrate having a recess [is provided] in a central area of a surface thereof;

[the electrode, and] a soldering land of the electrode structure arranged in the recess, said [electrode further] soldering land having [, on] a circumferential wall defining a hollow portion extending from said surface [surrounding said recess of said central area,]; and

a [through portion passing] passage through [bet surrounding said recess of said central area in] an outer portion of said circumferential wall [surface].--

Claim 2 has been amended as follows:

--2. (amended) The electrode structure of the carrier substrate of the semiconductor device according to claim 1, wherein said [electrode] soldering land is [hemispheric configuration] hemispherical-shaped having a flange portion, and having a concentric [hemispheric] hemispherical hollow portion thereinside, wherein said recess is hemispherical-shaped and said [hemispheric] hemispherical portion of said [electrode being fitted] soldering land fits into [a hemispheric] said hemispherical-shaped recess [provided on an outer surface of said carrier substrate of said semiconductor device], and said [electrode] soldering land being fixedly attached to said carrier substrate so that said flange portion abuts said [outer] surface of said carrier substrate.--

Claim 3 has been amended as follows:

--3. (amended) The electrode structure of the carrier substrate of the semiconductor device according to claim 2, wherein said [through portion passing through between said recess and said outer portion of said wall surface being] passage is at least one slit portion provided in said flange portion and said circumferential wall [surface] of said [electrode] soldering land adjacent to said flange portion.--

Claim 4 has been amended as follows:

--4. (amended) The electrode structure of said carrier substrate of said semiconductor device according to claim 1, wherein said [electrode] soldering land is cylindrical having a flange portion and having a concentric cylindrical hollow portion [said reinside] thereinside, wherein said recess is cylindrical, said cylindrical portion of said [electrode] soldering land [being fitted] fitting into [a] said cylindrical recess [provided on an outer surface of said carrier substrate of said semiconductor device], and said [electrode] soldering land is fixedly attached to said carrier substrate so that said flange portion abuts said [outer] first surface of said carrier substrate.--

Claim 5 has been amended as follows:

--5. (amended) Said electrode structure of said carrier substrate of said semiconductor device according to claim 4,

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wherein said [through portion passing through between said recess and said outer portion of said wall surface being] passage is at least one slit [provided] in said flange portion and a portion of said cylindrical wall [surface of said electrode] adjacent to said flange portion [to a position close to a bottom].--